

Intervention Practices in Adult Literacy Education for Adults with Learning Disabilities^{1, 2}

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Abstract

Adult literacy education is increasingly focused on preparing adults with literacy skills for the world of work. Assumptions about how this goal is being met should be made with caution, given that adult education also serves other goals, adult educators have diverse training, and many adult students are presumed to have learning disabilities (LD) and histories of not benefiting from literacy interventions. Adult educators from around the nation were surveyed on what literacy areas they address and what interventions and materials they use for adults with LD. Analyses of the responses indicate trends in the nature of interventions used.

Adult literacy education is part of a field fraught with assumptions. One common assumption is that adult education is only about remediation of basic literacy skills. This assumption is rooted in a second one, that only those with deficit basic skills enroll in adult education. In truth, much of adult education *is* dedicated to development of basic literacy skills in the primary literacy areas of reading, writing, and arithmetic (including instruction in English for Speakers of Other Languages) (Koch & Payne, 1995; National Adult Literacy Summit, 2000). However, what constitutes “basic” is not consistent across adult

education programs (National Adult Literacy Summit, 2000; Ross-Gordon, 1998). Also, many adult literacy programs provide a variety of interventions in other areas, including workplace literacy, content knowledge, higher order thinking, and daily living. Not surprisingly, the adults who enroll in adult education range in literacy proficiency, age, aptitude, disability status, prior educational experience, motivation for participation, and goals.

Yet another assumption is that the adult education teaching force is composed of volunteers. The truth is that the adult educator population is varied, but comprised primarily of trained educa-

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tors. The majority of adult educators work in adult education on a part-time basis (Gough, 1997; Ross-Gordon, 1998). Estimates indicate that just over 10 percent are paid (Gough, 1997). While only approximately 20 percent of full-time adult educators are certified in adult education, over 80 percent (paid and volunteer) hold some type of education certification (Gough, 1997; Ross-Gordon, 1998; Sabatini et al., 2000). Many adult educators teach in more than one area (e.g., adult basic education [ABE], adult secondary education [ASE], adult vocational education [AVE], English as second or other language [ESOL], family literacy, General Educational Development [GED] preparation) (Sabatini et al., 2000). These educators are responsible for making curricular and instructional intervention decisions. However, despite estimates that as many as 50 percent of adult education students have learning disabilities (Ryan & Price, 1993; see also Payne, 1998; Travis, 1979; White & Polson, 1999), it is unclear what percentage of adult educators are trained special educators. Thus, the many students in adult literacy education who need specialized instruction attend programs staffed by generally knowledgeable educators who, nonetheless, may not be prepared to meet the challenges of adults with significant literacy needs and a learning disability (Ross-Gordon, 1998).

Another assumption is that adult education is a quick route to the GED diploma or other high school equivalency certificates (Chaplin, 1999). In truth, only approximately one quarter of adult education prepares adults for diploma options (National Adult Literacy Summit, 2000). Also, those certificates are difficult to earn; for example, the average age nationally for passing the GED is 25 (American Council on Education, 2000), whereas the majority of dropouts leave school before the end of eleventh grade. Further, only 3 percent of adults with learning disabilities (LD) who enroll in adult education for GED preparation earn their GED diploma (Wagner, Blackorby, Cameto, & Newman, 1993). The literacy proficiency required to earn equivalency degrees is very different from the basic literacy assumed to predominate in programs.

Perhaps a key reason for the many assumptions about adult education is that it has been loosely regulated. Most state, local and private school authorities have had greater autonomy in designing and regulating their adult education efforts than have secondary programs that may serve some of the same population (National Adult Literacy Summit, 2000). In response, expectations have become increasingly specified for the process and outcomes of various adult education options. For example, the “welfare to work” initiative defined by the Personal Responsibility and Work Opportunity Reconciliation Act (P.L. 104-193) (1996) calls for adults receiving welfare services to be educated in preparation for work (e.g., Temporary Assistance for Needy Families), which can include a limited amount of adult literacy education or preclude it. The Workforce Investment Act of 1998 requires literacy instruction in reading, writing, computing, problem solving, and communication skills to prepare adults for work. Focusing on skills for employment that are also linked to lower recidivism, the federal prison system requires literacy education to twelfth-grade proficiency (Jenkins, 1994). To enhance the skills of adult educators charged with these responsibilities, the National Institute for Literacy has established Equipped for the Future (www.nifl.gov/lincs/collections/eff/about_eff.html), a research and development effort designed to identify content standards and effective interventions in adult basic education. Some of these initiatives respond to the variations in the adult education teaching force, but most are attempts to regulate outcomes. Even with these “tightening” regulations, adult education remains uniquely open to autonomous control of practices (National Adult Literacy Summit, 2000).

Adults who need to develop skills in the primary literacy areas tend to have histories of not benefiting adequately from interventions. There is growing recognition that most students who have had difficulty can develop basic literacy skills but that the intervention required is extensive and time-consuming (e.g., Torgesen, 2000). Consistent with an assumed practice of adult literacy education, these interventions stress remediation

of basic skills. Most of the research in this area has been conducted with younger school-age populations. As a consequence, there is less reliable information about what constitute best practices in adult literacy education (Sturomski, Lenz, Scanlon, & Catts, 1998), leaving adult literacy educators with the challenge of knowing what interventions and materials to use with their students. Both adult educators and their students can attest that the limited choices for literacy intervention materials compound the challenge of effective intervention. The majority of literacy instructional materials are developed for school-age populations and are not geared toward adults. In addition, typically they are not validated for pedagogic soundness (Carnine, 1993).

Purpose

Local autonomy in determining literacy goals and intervention practices coupled with variation in the goals of various initiatives to regulate adult literacy education can mean that actual areas of intervention and approaches to intervention may differ from common assumptions. For example, given the varied backgrounds of adult literacy educators, it is not wise to make assumptions about what areas of literacy are emphasized or what interventions are used. Because literacy development is a presumed goal of most adult education programs (National Adult Literacy Summit, 2000) and is essential to adult students' community and economic participation in the 21st century (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993; National Adult Literacy Summit Survey, 2000), and because many among the adult literacy student population are presumed to have a learning disability, we sought to identify (a) what literacy areas are emphasized the most in interventions for adults with LD, and (b) what interventions and materials are used in services in the three primary literacy areas (i.e., reading, written language, mathematics).

Method

Participants

Individuals representing all 50 states, the District of Columbia, and Puerto Rico were asked

to participate. Specifically, state adult education literacy directors were telephoned and asked to complete a questionnaire to be mailed to them. Directors who declined identified an alternate staff member knowledgeable about services for adults with LD in their jurisdiction.

Each state level representative also identified one direct service provider ("practitioner") in the state who was also asked to complete a questionnaire. The selection criterion was that the practitioner be an effective adult educator who was knowledgeable and experienced about practices in learning disabilities and adult literacy education.

Procedures

Each state representative was sent one questionnaire to complete and an additional questionnaire with envelopes and postage to be forwarded to the chosen practitioner. A cover letter thanked the participants and reminded them of the study purpose. Pre-addressed stamped envelopes were provided for ease of returning completed questionnaires. Two weeks after the requested return date a follow-up letter, duplicate questionnaire, and return envelope were sent to those who had yet not responded. Approximately four weeks later a second packet was sent to everybody who still had not responded.

The Questionnaire

Two questions were asked about the interventions and materials programs used. The first asked respondents to "list the four areas most emphasized in literacy interventions for adults with LD." The purpose was to determine whether and how prominently the primary literacy areas were included in interventions provided. The second question asked participants to identify interventions and materials used in the primary literacy areas. This question was intended to collect lists of materials and practices that could be categorized to profile the nature of prevailing literacy practices for adults with LD. Open-ended questions were used to ensure that respondents' answers reflected actual program practices, instead of their being cued to emphasize the primary lit-

eracy areas in the first question, or reflecting choices from a predetermined list for the second question. Asking respondents to specify materials and practices actually used increased the likelihood of accurate reporting. State-level representatives were asked regarding “programs in your state,” practitioners were asked to respond in regard to “your program.”

While the cover letter and questionnaire clearly stated that responses should reflect services to adult learners with LD, no consistent criteria for identifying LD were suggested. Unlike preK-12 education, adult education is not required to comply with a specific definition or identification process for LD. Further, while adult literacy programs are bound by the Americans with Disabilities Act not to discriminate, and in individual cases to comply with other disability legislation, they are not required to screen for or identify LD. Nonetheless, although regulation does not require a common definition, most programs recognize the estimated high percentages of learners with LD (Ryan & Price, 1993; White & Polson, 1993) and provide what they consider to be appropriate services. The definition that guides most adult service programs is that issued by the Rehabilitation Service Administration (1985) (Westby, 2000), which identifies LD as a central nervous system disorder that manifests itself with deficit skills. However, it does not indicate identification parameters or exclusions, as do the school-age federal (Individuals with Disabilities Education Act, 1977) and National Joint Committee on Learning Disabilities (1994) definitions (Anderson, 1993). This definition, which is vague for operationalizing, reflects the lack of consistency in the field for determining how to define and identify LD in adult populations (Mellard, 1990; Stanovich, 1999). As MacMillan, Gresham, and Bocian (1998) have noted, standardized definitional and identification criteria tend not to reflect actual practices anyway. Adult education determines LD at the local level. Thus, to gauge how a variety of programs around the nation provide services to a population ill defined in theory and practice, it is most appropriate to allow them to respond regarding their own practices. The pur-

pose of this study was to reflect actual program practices instead of constraining responses by one set of imposed criteria. Other research (e.g., Gregg, Scott, McPeck, & Ferri, 1999) has reported on the variations in how programs define and screen or identify LD in this population.

Pilot test. The questionnaires were based on draft versions piloted with teaching and administrative staff at a local adult education center. The researchers were familiar with the adult educators and the services offered in their program. Following Fowler’s (1988) suggestions, the participants held the same job roles as prospective questionnaire recipients. Each individual completed the questionnaire separately while being observed, but not assisted, by a researcher. Immediately after everybody had completed the questionnaire, a group discussion was held to review the clarity of the instructions, clarity of each item, and understanding of expected answers or problems in answering (Fowler, 1988). The feedback from these discussions was used to modify the questionnaires. The same staff members reviewed and approved the revised questionnaires used in this study. The pilot test process was also used to establish the reliability of the questionnaire items. Following the educators’ completion of the draft questionnaires, interrater reliability was estimated by comparing individuals’ responses for consistency, and comparing responses with what the researchers knew about the program. Because responses were expository and open-ended, it was appropriate to estimate the reliability instead of assigning numeric values to responses and performing quantitative calculations (Litwin, 1995).

Data Analysis

Questionnaire responses were recorded, categorized, and analyzed in a three-step process. First, all responses to a single questionnaire item were listed (identical responses were listed once) and the number of responses was noted. Second, four researchers categorized and subcategorized the responses following procedures based on the constant comparative approach to categorical analysis (Strauss, 1987). Two of the researchers initially sorted the responses. For the first ques-

tion the categories were based on the types of literacy areas named; the categories for the second question pertained to specifically named interventions and materials or approaches to intervention, separated by the three primary literacy areas. These category schemes were consistent with the intent of each question. The four researchers then discussed and refined the categories. Categorization was an iterative process of grouping responses in “theoretical classes” based on similarities (Berg, 1995). The team of four refining the categorization begun by two members provided a multiple-perspective review of the emerging categories and required rereading and discussion to form the final categories (Berg, 1995). The process was completed when the four agreed on designations for all responses. In the third step of the process,

the four researchers looked for trends within categories. These trends provided insights into the nature of literacy interventions and materials used for adults with LD.

Results

Response Rate

Thirty-four state representatives and 33 practitioners returned completed questionnaires. Only eight states or regions are not represented by a response. Respondents’ self-identified roles are listed on Table 1. The overlap in roles between the two groups is representative of the way adult education programs tend to be organized. That is, administrators and direct service providers are often one and the same. Full-time administrators

Table 1

Respondents to the Questionnaire

		State Representatives	
Assistant Director (1) ^a		Research Associate (1)	Director (12)
Consultant (7)		Instructor (2)	Specialist (4)
Coordinator (4)		Program Supervisor (2)	no response (1)
No. of respondents	34		
		Practitioners	
Coordinator (13)		Principal (2)	Specialist (1)
Instructor (5)		Program Coordinator/ Director (10)	no response (2)
No. of respondents	33		

^a Number of respondents.

are a financial luxury that most programs cannot afford. As a result, these individuals, are often part-time administrators and part-time practitioners. In some programs, practitioners rotate tenures as program administrators.

The nature of the responses across the two groups of respondents did not differ. However, for both questionnaire items, the practitioner group provided more responses (i.e., multiple and more detailed) than the state-level representatives. The same category labels were established for both groups' responses. Because the sorting of responses for state representatives and practitioners did not yield different trends, and because the job roles in the two groups were similarly distributed, their responses were collapsed for reporting below.

Specific Intervention Areas Emphasized

The item asking which four areas are most emphasized in literacy interventions yielded 232 responses, an average of three responses per participant. The open-ended question asked participants to "list" areas, as opposed to providing narrative examples or other elaborated responses. The findings demonstrate that programs emphasized the three primary literacy areas and workplace skills. As noted in the descriptions that follow, responses also reflect trends of teaching basic literacy skills and learners' functional application of those skills.

Responses to the first question were sorted into five categories. These ranged from *Academics* (see Table 2) to *Independent Living*, *Screening*, *Personal Development*, and *Other*. Responses in the two largest categories, *Academics* and *Independent Living*, were subcategorized to further distinguish trends.

Academics. The label *Academics* describes responses that addressed typical educational priorities such as reading and memory skills, and the instructional environment. These were differentiated from responses that addressed adults' personal growth or program services that are not instructional. Because nearly two-thirds of all responses to this questionnaire item addressed academics, an initial and expected finding is that,

among our sample, adult education for learners with LD emphasizes academic development. The descriptions that follow reveal specific academic focuses.

The 154 responses that composed the *Academics* category were organized into six subcategories. The largest was *Skill Area* (131 responses). The skill area reading was identified more than any other (58 responses). Most of these responses simply stated reading. The few that provided greater detail (6) referred to approaches that may be broadly classified as skills approaches or "bottom-up," as opposed to interactive, "top-down," or whole-language approaches to reading (Anders & Guzzetti, 1996). Typical responses included decoding and comprehension and directed reading. No reading response indicated that top down approaches were used. While 6 of 58 responses is a small percentage, they do reflect one trend in the full data set, an emphasis on basic skills. (Responses to the second questionnaire item revealed greater detail about trends in the interventions programs used.) Two reading responses indicated that reading was taught using functional application, "reading beginning with environment words," and "basic reading ... for the workplace ..." Across the data set a trend also emerged that emphasized learners' functional application of literacy skills.

After reading, math was the second most frequently identified skill area (31). Approximately half of these responses specified the math areas emphasized. These responses also reflected a basic skills focus (e.g., "arithmetic," "basic skills in mathematics"). Even responses that mentioned math for the workplace or daily living explicitly stated "basic skills." Three additional responses named functional, or real world, application practices (e.g., math skills for the workplace). None of these responses indicated that conceptual or higher order aspects of mathematics were taught.

Written language (23) and workplace skills (24) were the only other frequently named skill areas. Because only two written language responses provided any elaboration ("dictated experience stories, etc.," "emphasis on organization ..."), no implications can be reasonably drawn

Table 2

Categories and Subcategories of Areas Most Emphasized in Literacy Interventions for Adults with LD

<i>Academics (154)^a</i>	
<i>Skill Area (131)^b</i>	
reading (58)	competencies (1)
math (31)	English (1)
workplace (24)	English as a second language (1)
written language (23)	postsecondary education skill preparation (1)
language (2)	pre-literacy (1)
<i>Academic Program (10)</i>	
GED preparation (8)	GED testing (1)
diploma classes (1)	high school diploma preparation (1)
<i>Instructional Approaches (6)</i>	
build learning/work strengths (2)	individualized (2)
guidance/counseling (2)	
<i>Academic-Related Skills (4)</i>	
coping (1)	memory (1)
listening (1)	study (1)
<i>Materials (2)</i>	
materials/props (1)	various technologies (1)
<i>Learning environment (1)</i>	
<i>Independent Living (66)^b</i>	
<i>Daily living (24)</i>	<i>Writing (2)</i>
<i>Social skills (20)</i>	<i>Basic skills (1)</i>
<i>Life skills (16)</i>	<i>Community (1)</i>
<i>Job (3)</i>	<i>GED (1)</i>
<i>Math (3)</i>	<i>Money (1)</i>
<i>Survival (3)</i>	<i>Reading (1)</i>
	<i>Screening (3)</i>
	<i>Personal Development (2)</i>
	<i>Other (3)</i>

^aNumber of responses. ^bTotals may not match because some responses represent more than one grouping

beyond the finding that writing is a primary area of emphasis. The workplace skills identified ranged from mostly general work traits (e.g., attitude, essential) to skills identified at work sites or by employer advisory boards (e.g., “workplace skills taught through private industry council partnership”). Virtually all of the eight responses in this category specified that the skills taught have immediate applicability on the job. This finding reflects the second trend in the full data set, an emphasis on functional application. Rounding out the *Skill Area* subcategory responses were *language* with two responses, and *competencies*, *English*, *English as a second language*, *preliteracy*, and *postsecondary education skill preparation*, each represented by a single response.

Other responses fitting into the *Academics* category were subcategorized under *Academic Programs*, *Academic-Related Skills*, and *Learning Environment*, among others (see Table 2). The respondents emphasized GED attainment in nine of the 10 *Academic Programs* responses; two responses specified credentialing programs (“diploma classes” and “GED / high school diploma preparation”). These few responses reflected a broad interpretation of the question prompt (information was requested about the nature of literacy practices in adult education not program completion goals). Thus, conclusions based on what they indicated about program emphases should be made with caution. The four *Academic-Related Skills* were appropriate to participating in most any learning context, but also have applicability in the world of work and daily living. Deficits in these skills are common characteristics of individuals with LD. Looking at the remaining *Academics* responses, the instructional approaches identified indicate how some programs attend to the individual needs of persons who may have an LD.

Independent living. The second largest category of literacy areas emphasized concerned *Independent Living* (see Table 2). The 66 responses in this category indicated that attention is primarily paid to daily living or “life skills” and social skills. While “daily living” and “life skills” are different terms, nearly all the elaborated responses

indicated they were intended similarly. Daily living responses included “survival skills,” “literacy skills,” and “money management,” life skills responses included “checkbooks, forms, etc.” and “basic reading.” These responses (total of 40), in addition to those indicating “social skills” (20), reflected a program emphasis on independence through functional literacy, stressing community participation, money management, and employment. The remaining subcategories are consistent with these emphases. Low-frequency responses named teaching of reading, writing, and basic skills specifically for independence (e.g., “writing skills in a life skills context”). Other subcategories included “survival,” and “community”; finally employment was directly stated in three responses.

Additional areas. Eight responses comprised the remaining categories of responses. Two were categorized as *Personal Development*, “self-esteem building” and “goal setting,” three related to *Screening for LD and learning styles* (e.g., “learning styles inventory”). And three were categorized as *Other* (e.g., citizenship, “refer to other government agencies”). A comparison of responses across categories and subcategories indicates that the literacy areas that are emphasized most concern academics and employment. Further, the functional application of those skills is stressed.

Interventions and Materials Used

The second questionnaire item asked participants to identify interventions and materials used in the primary literacy areas. These responses would reveal what specific interventions are used for adults with LD, and the subsequent analysis would shed light on the nature of those interventions.

Specifically, this item asked respondents to list interventions and materials they “found helpful in working with adults with LD.” Spaces on the questionnaire were provided for responses regarding (a) reading, (b) written language, and (c) math. Interestingly, in all three areas few responses were provided more than once. Analysis of the responses indicated consistency in the types

of materials and interventions used, however. The two trends of skills-based interventions and adult learners' functional application are found in the responses. In all three literacy areas more interventions and approaches to intervention were named than materials. A total of 234 responses were provided for reading, 160 for written language, and 166 for math.

Reading. Of the reading responses, 201 (85%) identified an intervention or material, as requested; of those, 97 were *Specifically named interventions* and 49 were *Materials* (see Table 3). The remainder were grouped primarily by *Type of intervention named* (18) or *General approach to intervention* (37).

Almost all reading responses provided more than once fell in the *Specifically named interventions* category; the most frequent response, Orton-Gillingham interventions, was only stated seven times. The other multiple responses were products of New Readers Press, Wilson Reading System, Strategies Intervention Model, Laubach, Ri-

chard Cooper/Learning Disabilities Inc., and Dale Jordan. The various interventions reported strongly reflected a skills approach to reading instruction. Most of them have a phonics-based orientation; for example, the Texas-Scottish Rite Hospital Series (Texas-Scottish Rite Hospital), Step by Step Reading Programs (LDA), Reading Skills that Work Series (Contemporary Press), and Explode the Code (Educators Publishing Service). These and the majority of interventions named are intended to help learners develop proficiency in incremental skills of reading. According to Adams (1990), initial skills for remedial reading success include phonemic and phonetic awareness. No response stated phonemic or phonologic-awareness as a specific goal, however.

The 55 reading responses categorized as *Type of intervention named* or *General approach to intervention* reflected practices that typify remedial or special education (Carnine, 2000; Heshusius, 1991), including "slower or repeated applications of teaching techniques," "individual

Table 3

Response Categories for Intervention and Materials in the Primary Literacy Areas

Reading (234) ^a	
<i>Specifically named interventions</i> (97)	<i>Type of intervention</i> (18)
<i>Materials</i> (49)	<i>Specifically named nonreading</i> (8)
<i>General approach to intervention</i> (37)	<i>Other</i> (21)
	<i>Unfamiliar</i> (3)
Written Language (160)	
<i>Specifically named intervention</i> (49)	<i>General approach to intervention</i> (21)
<i>Materials</i> (35)	<i>Specifically named nonwritten language</i> (3)
<i>Type of intervention</i> (33)	<i>Other</i> (19)
Math (166)	
<i>Specifically named intervention</i> (46)	<i>Type of intervention</i> (17)
<i>Materials</i> (39)	<i>Specifically named nonmath</i> (4)
<i>General approach to intervention</i> (37)	<i>Other</i> (21)
	<i>Unfamiliar</i> (3)

^aNumber of responses.

tutoring help using learning styles,” and “sensory and tactile learning.” These approaches are consistent with skills-based interventions in the *Specifically named intervention* category. “Sensory” and “multisensory” approach responses (3) could represent top-down or bottom-up activities. Eight other interventions named specifically indicated that a top-down approach is sometimes used (e.g., “language experience writing and reading,” “whole language techniques”). These interventions support learners in meaningful application of skills as part of the process of developing reading proficiency and may de-emphasize discrete skill mastery. Thus, with few exceptions, both the specific interventions and the approaches to intervention favored a skills-based orientation.

The majority of reading *Materials* named did not necessarily relate to specific interventions. Examples included “sand paper alphabet,” “phoneme/grapheme cards,” and “basic word lists.” These may be used with a variety of reading interventions. However, many of them contribute to the finding that reading interventions tend to be skills based. A small portion of *Materials* might be construed as representative of more top-down approaches to reading intervention, for example, “taped books,” “workplace reading materials,” and “daily newspaper.”

The second trend in the full data set, emphasis on functional application, was minimally represented by four reading responses. Two related to reading for pleasure (“recreational reading”) or information (“daily newspaper”), a third stated that reading is taught in connection to “shopping for groceries” and “filling out job applications,” while the fourth noted that “outside activities (going to stores, etc.)” were used. Consistent with pleasure reading as a functional skill, two other responses indicated that high-interest reading materials were used.

Much reading instruction is driven by prescribed curriculum, not the teachers’ knowledge of effective practice. As might be expected, therefore, the *Specifically named interventions* were almost all commercially prepared. Six were developed by state literacy agencies, and seven by literacy or learning disabilities advocacy organi-

zations (e.g., Literacy Volunteers of America). Some required more extensive training than others; for example, three Strategies Intervention Model strategies (University of Kansas Center for Research on Learning) require training to obtain instructional procedures and materials. Only three interventions were developed for users of languages other than English (e.g., Cartilla Fonetica [Kregel]). In contrast to the interventions, only approximately one fifth of the *Materials* named were commercially produced (e.g., Literacy Volunteers of America materials, Hartley software). The majority of materials represented general supplies such as “high-interest materials,” “large-print books,” “Irlen filters” (Irlen Institute), (two responses stated “color overlays”), “daily newspaper,” and “taped books.” Most could be used with a variety of interventions.

Finally, eight of the reading interventions and materials responses were categorized as *Specifically named non reading*; for example, “GED testing-adjusted timing.” The remainder were categorized as *Unfamiliar* or *Other*, for example, “Jewish agency,” “no specific curricula are used.”

Written language. The response categories for written language were the same as those for reading (see Table 3). Again, the largest category was *Specifically named interventions* (49); *Materials* (35) were named approximately as often as *Type of intervention* (33). Aside from eight nominations of “language experience” approaches, repeated intervention responses were rare. Other responses were various New Readers Press materials (6), products from Richard Cooper/ Learning Disabilities Inc. (3), and the Wilson System (2). Most responses reflected a focus on the mechanics and skills of writing; few reflected functional applications. That is, despite responses such as “language experience techniques,” and “e.g., a note to child’s teacher,” most addressed the formal structure of writing (e.g., “Dr. Cooper’s vocabulary and grammar cards,” “step-by-step essay organization”) or incremental processes (e.g., “Patterns in Spelling,” “English skills instruction”).

The nature of the written language interventions reveals a distinction from reading interventions. While most of the *Specifically named* and

Types of writing interventions reflected a skills approach, they could be used in a variety of bottom-up or top-down activities. Representative *Specifically named interventions* include “GED writing skills editing strategy,” “Writing for Challenge” (New Readers Press), and “Framing Your Thoughts” (Language Circle Enterprises). Examples of *Types of interventions* included “semantic mapping for prewriting organization,” “statement pies,” and “practical writing exercises.” These interventions can be drilled and practiced independently or can be applied in authentic tasks. Only the responses related to spelling (4) (e.g., “Dr. Cooper’s Spelling”) and typing or keyboarding (11) (e.g., “typing for beginners”) focused exclusively on skills development. Consequently, it is possible that written language instruction more commonly imbeds skills and authentic tasks; however, this conclusion can only be drawn speculatively. Several written language responses acknowledged a link between reading and writing interventions (e.g., “Sam and Val, Main St. [New Readers Press]- workbooks and readers,” “The Reading-Writing Connection” [Glencoe]); such a link was only cited once in the reading responses.

Similar to the reading responses, most of the *Specifically named interventions* for writing were commercially produced (e.g., Patterns in Spelling [New Readers Press], Framing Your Thoughts – The Basic Structure of Written Expression [Language Circle Enterprise]). Approximately three-quarters of the *Materials* reported were generic writing materials such as “markers or implement of choice” and “tape recorders are used to practice essay dictation.”

The interventions named reflected a predominant emphasis on composition; for example, “Write All About It” and “Writing for Challenge (New Readers Press).” However, the *General approach to intervention* category responses were vague about how writing interventions are organized. Thus, they do not make clear whether fundamental skills such as spelling and planning are taught in concert with composition for functional applications such as “correspondence activities — letter and email.” Only a few responses clearly indicated that functional application is part of writing

instruction; these included “self-developed strategy for GED essay writing” and “real-world examples, e.g., a note to child’s teacher.” Nevertheless, several additional responses such as “whole language” and “writing process” likely reflect functional use.

Several respondents indicated that writing interventions were provided, at least in part, through computer-assisted instruction. Consistent with computer contexts, a small number of responses (6) revealed that keyboarding or computer skills are taught.

Writing *Materials* named included spelling aids, large print, writing instruments, and “special paper, e.g., unlined.” Nearly all the materials could be used with virtually any intervention, and were more representative of supplies (e.g., notebook, Franklin Speller, commercial labels and signs, keyboards) than specially designed materials. Five of the 35 *Materials* responses stated that materials are teacher-made (no reading materials were teacher-made).

Only two responses indicated that writing interventions were provided one on one, (e.g., “tutors”). However, several more indicated that writing instruction was individualized (e.g., “individually developed for students”). Also, a number of the *Specifically named interventions* and *Materials* were designed for individualized practice. Interesting, responses in the *Reading* section did not address individualization. Thus, common written language interventions and materials differed from those for reading in two important ways: (a) they were more amenable to being used for isolated skill development or as part of authentic whole tasks; and (b) they allowed for more teacher and learner autonomy in how they are used. However, responses across the *Written Language* categories also indicate an emphasis on skills development.

Math. Specifically named interventions was again the largest category, with 46 responses, followed by *Materials* (39) and *General approach to intervention* (37). *Type of intervention* was a smaller category, including only 17 entries (see Table 3). The few multiple responses were Tic Tac Toe Math (Learning Disabilities Resources)

(6), a computation strategy, along with the commercial series Breakthrough to Math (New Readers Press) (3), Number Power (4) and Number Sense (NTC Contemporary Publishers) (4). Some *Materials* were mentioned several times, such as Cuisenaire blocks and rods (3), calculators (7), and “manipulatives” (11). Thus, both math and written language responses differed from reading responses in that materials were nominated nearly as often as interventions. Also, like written language responses, three stated that materials were teacher-made, this reflecting the greater independence the adult educators reported in designing and conducting math and written language interventions. A review of responses across categories indicates that the math interventions and materials used with adults with LD were overwhelmingly skills based.

The *Specifically named interventions*, typified by Tic Tac Toe Math, Number Power, and Math for the Real World (Instructional Fair), are representative of interventions used to teach basic math skills, and reflect an instructional focus on basic calculation skills. A review of all the math responses suggests that concepts and skills prerequisite to counting and calculation are not the focus. Vaughn, Bos, and Schumm (2000) report that prenumber and numeration skill (number and unit relationship awareness) is foundational to performing basic math skills and higher order operations. The only mention of numeracy was an unelaborated response to the first questionnaire item. Several commercially published intervention series named begin with concepts of number and some of the *Types of interventions* were for teaching counting skills (e.g., “life skill math-counting money”). So most of the interventions focused on introductory-level skills and concepts that sequentially follow prerequisite mathematical literacy (e.g., Tic Tac Toe Math, Kentucky Educational Television-Math Basics, Number Sense, Breaking the Rules). These interventions prescribe teaching skills sequentially.

As is typical of commercially produced math interventions, the majority were series that cover a range of math operations (e.g., Number Power

[Contemporary] and Breakthrough to Math [New Readers Press]). Thus, some of the responses that named series might indicate that higher order math instruction is provided as well. Few responses clearly indicated that conceptual aspects of mathematics were directly addressed (e.g., “teachers incorporate learning strategies into lessons, i.e., word analysis, ... mapping, etc.”).

When application of mathematics skills was identified, it addressed basic independence skills such as money management and math for daily living. Examples included Family Math and Math for the Real World interventions, and “life skills math” and “money facts” as *Types of interventions*. These four percent of math intervention responses demonstrated that functional application of mathematics skills is sometimes stressed. Problem solving is part of math for daily living, but was only named in two responses, whereas basic skills were stated numerous times. The intervention approaches reported varied in terms of how much direct instruction and isolated drill work is featured. “Self-paced” learning and “fun” activities were both mentioned, but neither of those responses appeared in the reading or written language sections.

The *Materials* named support the finding that math interventions are primarily skills oriented, they included “coins, etc,” “Cuisenaire blocks,” “Unifix cubes,” and “Learning Wrap-up” (Learning Wrap-Up Inc.). Unlike word problems and daily living artifacts (e.g., budgets, job-based problems), these materials are used for counting and visually representing basic operations. While these and other materials provide practice in numeracy, it is primarily in addition, subtraction, multiplication, division, and sometimes, fraction skills.

Of the three primary literacy areas, math had the highest proportion of responses in the *Materials* category. A review of the materials indicates two trends, use of manipulatives (e.g., “hands-on blocks,” “fraction strips,” “manipulatives of all sorts”) and use of calculators and computers. Further, adult students working on math are actively involved in individualized lessons (although some of the materials could be used as part of

large-group instruction). Also, 14 of the 37 *General approach* responses indicated that individualized and one-on-one instruction is provided. Finally, 10 responses noted that the adult educators make their own materials and interventions. This differed from both reading and written language responses.

Other findings. In the reading, written language, and math responses, accommodative practices such as slowed pace or extended time were also reported. Modifications to materials and methods were named too (e.g., “teachers make the necessary adaptations,” “... extraneous function keys are blacked out ...”). Overall, the practices and materials identified for reading, writing, and math are commonly considered as appropriate for students with LD (National Adult Literacy and Learning Disabilities Center [NALLDC], 1999).

Limitations

Limitations of this study include the failure to ask about interventions and materials “found helpful in working with adult with LD” in workplace literacy. Based on the responses to the first question, this is an area of emphasis in adult literacy programs. While 30 questionnaire responses mentioned job contexts, a direct question would have yielded more information. A second limitation is that the questionnaire method did not allow for follow-up questions. Elaboration on vague responses (e.g., “essential” to identify workplace skills taught) would have been informative. Also, despite the cover letter instructions and the clear directions on the questionnaire, we cannot be sure that self-reported practices were actually used, or, comparatively, how frequently each was used. Finally, the selection criteria could have resulted in respondent groups not representative of the general adult educator population. Presumably, at least a portion of state representatives or their designees would be professionals who attained those positions because of both competence and years of experience. Similarly, individuals who take the time to complete a questionnaire may be more dedicated (Fowler, 1988) and better orga-

nized than others. While these are all potential limitations to the representativeness of the findings, the large number of respondents from a variety of programs across the nation and the consistency in their responses indicate that it is reasonable to trust in these findings.

Discussion

Responses to the questionnaires used in the present study affirm that the primary literacy areas of reading, written language and mathematics are, in addition to workplace skills, the main focus of literacy education for adults with LD. These foci are consistent with common definitions of literacy (Koch & Payne, 1995; National Adult Literacy Summit, 2000) and with public policy intended to regulate adult education (e.g., Workforce Investment Act of 1998).

The intervention practices the adult educators reported using reveal that they primarily employ approaches of the sort Heshusius (1991) has referred to as “controlling.” That is teaching intends “mastering skills...separate from and prior to involvement in learning for intrinsically relevant purposes” (p. 320) (see also Cousin, Diaz, Flores, & Hernandez, 1995). Intervention practices of this sort have been repeatedly advocated for and validated as being appropriate for learners with learning disabilities (Carnine, 2000; Gersten, Baker, Pugach, Scanlon, & Chard, 2001; Swanson & Hoskyn, 1998), and other researchers and observers have reached the same conclusion about the predominance of skills approaches in adult education (Hughes, 1998; Ross, 1987).

Most of the literacy interventions identified were in the area of reading, which is not surprising, given that reading is the primary academic skill area in which learning disabilities are manifested (Deshler, Schumaker, Lenz, & Ellis, 1984; Garner, Alexander, & Hare, 1991; Lyon, 1985; NALLDC, 1999). Indeed, it is the primary emphasis in most fields of education. Because of the importance placed upon reading education, commercially prepared interventions and materials are common. Both a benefit and a drawback to commercial reading products is that many endorse

highly prescribed reading instruction. In the case of adult literacy educators who have not been adequately trained, this is probably desirable.

Both the written language and math responses indicated greater adult educator autonomy in how lessons were conducted. At least in the case of written language, the adult student tends to be involved in shaping instruction. Of the three primary literacy areas, writing instruction was reported as the most holistic. Both the skills practiced and the interventions used tended to incorporate application to actual writing tasks. This is closer to the “intrinsically relevant purposes” Heshusius (1991) cited as missing from skills instruction. Still, only a minority of writing interventions incorporated functional applications such as writing notes to a child’s teacher or completing a job application.

The incremental skill-building practices that respondents reported reveal *how* their adult students are encouraged to learn. An outstanding question is whether that preferred orientation, or best practices of special education for children and adolescents with LD is appropriate to adult education (Sturomski et al., 1998). A consistent premise of adult education theory and policy is that it should directly contribute to meaningful outcomes for the adult. These practical outcomes may be related to literacy proficiency, workplace skills, or general quality of life. While there is an inherent logic to incremental approaches for students who have a lot of time for formal education (i.e., primary and secondary education students), it may not contribute to such meaningful outcomes for adults who still have basic literacy learning needs (Baker, Gersten, & Scanlon, 2002). Yet, it may be precisely the form of instruction necessary if effectively linked with practical outcomes.

While a trend in the data indicated an emphasis on functional application of skills, this was a lesser trend than the others mentioned. Isolated skill instruction and practice predominated across the three primary literacy areas. The functional application that was incorporated continued to stress performance of discrete skills. Much of the functional, or authentic, application that was reported related to job and daily living skills. The

educators identified using tasks from worksites to practice skills such as writing, computing, and reading for meaning.

The field must examine what it intends for adult literacy education, which has been one purpose of initiatives from the past decade. It must also investigate its outcomes and how they are accomplished. Evidence suggests that adult literacy education can contribute to enhanced qualities of economic and social living for adults with LD (Ross-Gordon, 1998). However, many adult education students with LD do not accomplish their goals (Scanlon & Mellard, 2002). The persistence of the detrimental consequences of a learning disability, the semi-professional qualifications of much of the adult literacy education teaching force, and the limits of what we know about effective practice for adults with LD may all be contributing factors. Improving adult literacy education for adults with LD requires considering them all.

Bridges to Practice: A Research-Based Guide for Literacy Practitioners Serving Adults with Learning Disabilities (NALLDC, 1999) provides a summary of the types of curriculum options and instructional practices that should guide the development of services to adults with learning disabilities. In the area of instructional practices, intervention research on learning disabilities points to an emphasis on instruction in learning strategies and the use of highly structured direct instruction of content, skills, and strategies that need to be mastered. This emphasis is consistent with other recommendations in the literature (e.g., Swanson & Hoskyn, 1998; Vaughn, Gersten, & Chard, 2000). In this study, only a few of the interventions reported would be described as highly structured direct instruction. Further, emphasis on learning strategies instruction was not reported as a common practice.

The high consistency in reporting skills-based and foundational literacy practices indicates the primary use of these approaches; however, observations would make this finding more conclusive. The gap between best practices recommended by *Bridges to Practice* and the findings of this study reinforces the importance of adult literacy pro-

grams evaluating how they meet the needs of adults with learning disabilities. The authors of *Bridges To Practice* suggest five questions that literacy programs should ask about curriculum and services to meet the needs of adults with LD: (a) does the adult need to learn basic skills for acquiring and expressing information? (b) does the adult need to acquire learning strategies for completing tasks efficiently and effectively? (c) does the adult need to learn critical content for daily interactions and responsibilities? (d) does the adult need to learn social skills for interacting successfully with others? and (e) does the adult need to learn self-advocacy strategies for communicating his or her interests, needs and rights? Only the first question was consistently addressed by respondents in this study.

This study has been useful in defining the literacy practices and materials that predominate in literacy education for adults with LD. Future research should investigate if and how the four remaining *Bridges to Practice* questions are addressed by programs. Assumptions about current practice should not inform improvement efforts before they are tested. Similarly, assumptions about the learning capabilities and needs of adults with LD need to be thoroughly investigated. Most of what we know about learning disabilities is based on school-age populations and has little relevancy for adolescent years and beyond (Stanovich, 1999). The well-known literacy and other quality-of-life needs of adults with LD (Halpern, 1993) make clear that the field must turn attention to what interventions will work for this population.

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